APRIL/MAY 2024

23UDA21 — DATA STRUCTURE AND ALGORITHM

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define Queue.
2. Write the application of Stack.
3. Difference between Binary Tree traversal and graph traversal.
4. Write the applications of graph.
5. List out the advantages and disadvantages of insertion Sort.
6. What is linear search?
7. Define Dynamic programming.
8. Which of the following methods can be used to solve the Knapsack problem?

9. What is the objective of the Traveling Salesman Problem?

10. How does Branch and Bound work in optimization problems?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Illustrate performance analysis of algorithm.

Or

(b) Discuss about stack operations in detail.

12. (a) Explain the types of Binary Tree representation.

Or

(b) Write a short note about any one MST Shortest path algorithm.

13. (a) What are the fundamental principles underlying the Selection Sort algorithm?

Or

(b) Describe about binary search techniques with example.

14. (a) How to generate an optimal storage pattern using tapes? Explain.

Or

(b) Write about All pairs shortest path algorithm.

15. (a) Discuss about the Hamiltonian Cycles.

Or

(b) Explain briefly about Sum of subset Techniques with example.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss about single linked list operations in detail.

17. Illustrate Graph traversal technique with neat sketch.

18. Explain Merge sort algorithm with an example.

19. What are the feasible solutions of Knapsack Problem? Explain.

20. Elaborate Travelling Sales person problem with an example.

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